Ø 002

AUG 3 1 2005

10/790,296

H1907

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently amended) A system that facilitates measurement and correction of overlay between multiple layers of a wafer, comprising:

an overlay target that represents overlay between three or more layers of a wafer; [[and]] a measurement component that determines overlay error existent in the overlay target, and determines overlay error between the three or more layers of the wafer, where the measurement component comprises a comparison component that compares a captured signature with one or more stored signatures to facilitate determination of overlay error existent in the overlay target. target; and

a control component that utilizes the overlay error determined by the measurement component to correct overlay error between the three or more layers of the wafer.

2. (Canceled)

- 3. (Currently amended) The system of claim [[2]] 1, the control component provides more correction in a first dimension and less correction in a second dimension in an instance in which design rule requirements tolerate less overlay error in the first dimension when compared to the second dimension.
- 4. (Currently amended) The system of claim [[2]] 1, a substantial overlay correction between non-adjacent layers of the wafer in a first dimension correlates to a substantial overlay correction between adjacent layers of the wafer in a second dimension.
- 5. (Currently amended) The system of claim [[2]] 1, an insubstantial overlay correction between non-adjacent layers of the wafer in a first dimension correlates to an insubstantial overlay correction between adjacent layers of the wafer in a second dimension.

- 6. (Currently amended) The system of claim [[2]] 1, the control component manipulates at least one of temperature(s) associated with a process step, pressure(s) associated with a process step, concentration of gas(es) within a process step, concentration of chemical(s) within a process step, composition of gas(es) within a process step, composition of chemical(s) within a process step, flow rate of gas(es) within a process step, flow rate of chemical(s) within a process step, timing parameters associated with a process step, and excitation of voltages associated with a process step.
- 7. (Currently amended) The system of claim [[2]] 1, at least one of concentration, rate of flow, and degree of abrasiveness is controlled to correct overlay error.
- 8. (Currently amended) The system of claim [[2]] 1, the control component facilitates correction of rotational overlay error.
- 9. (Currently amended) The system of claim [[2]] 1, the measurement component and the control component are integrated with at least one process step to facilitate *in situ* correction of overlay error.
- 10. (Currently amended) The system of claim [[2]] 1, the control component facilitating simultaneous overlay correction of two or more wafers.
- 11. (Previously presented) The system of claim 1, the overlay target has a structure of at least one of box-in-box, frame-in-frame, segmented frame, and periodic structure.
- 12. (Previously presented) The system of claim 1, the overlay target comprises one or more gratings.

- 13. (Previously presented) The system of claim 1, the measurement component comprising: an optical microscope utilized to capture an image of the overlay target; and a comparison component that compares the captured image with one or more stored images, wherein the comparison facilitates determination of overlay error existent in the overlay target.
- 14. (Previously presented) The system of claim 1, the measurement component further comprising:
- a light emitting component that delivers light incident to the overlay target; and a light capturing component utilized to capture a signature that results from the incident light contacting the overlay target.
- 15. (Previously presented) The system of claim 1, optical microscopy techniques are utilized to facilitate measurement of overlay error existent in the overlay target.
- 16. (Previously presented) The system of claim 1, scatterometry techniques are utilized to facilitate measurement of overlay error existent in the overlay target.
- 17. (Previously presented) The system of claim 1, scanning electron microscopy techniques are utilized to facilitate measurement of overlay error existent in the overlay target.
- 18. (Previously presented) The system of claim 1, Fourier transform infrared scatterometry techniques are utilized to facilitate measurement of overlay error existent in the overlay target.
- 19. (Original) A stand-alone metrology unit comprising the system of claim 1.
- 20. (Original) The system of claim 1, the overlay target associated with a particular die on the wafer.

- 21. (Original) The system of claim 1, the wafer subdivided into a grid comprising a plurality of cells, wherein the grid facilitates measurement and recordation of overlay error at particular portions of the wafer.
- 22. (Previously presented) The system of claim 21, the wafer discarded if a threshold percentage of cells exhibit a threshold level of overlay error.
- 23. (Currently amended) A method for measuring and correcting overlay error in more than two layers of a wafer, the method comprising:

generating a multi-layered overlay target, wherein disparate layers of the overlay target represent disparate layers of the wafer;

delivering light incident to the overlay target;

capturing a signature that results from the incident light contacting the overlay target; [[and]]

comparing the captured signature with one or more stored signatures to facilitate determination of overlay error existent in the overlay target:

approximating overlay error between layers on a wafer via measuring overlay error between representative layers of the overlay target; and

correcting overlay error between layers of a wafer based at least in part on the measured overlay error existent in the representative layers of the overlay target.

- 24. (Previously presented) A stand-alone metrology unit utilizing the method of claim 23.
- 25. (Currently amended) The method of claim 23, further comprising:

 correcting overlay error between non-adjacent layers of the wafer based at least in part on
 the measured overlay error-existent in representative layers of the overlay target.

 the layers of the wafer are non-adjacent layers.

- 26. (Currently amended) The method of claim [[25]] 23, the overlay error corrected via modifying one or more of temperature(s) associated with a process step, pressure(s) associated with a process step, concentration of gas(es) within a process step, concentration of chemical(s) within a process step, composition of gas(es) within a process step, composition of chemical(s) within a process step, flow rate of gas(es) within a process step, flow rate of chemical(s) within a process step, timing parameters associated with a process step, and excitation of voltages associated with a process step.
- 27. (Currently amended) The method of claim 23, further comprising approximating overlay error between adjacent layers on a wafer wa measuring overlay error between the representative layers of the overlay target.

the layers of the wafer are adjacent layers.

- 28. (Canceled)
- 29. (Currently amended) The method of claim [[28]] 23 further comprising: substantially correcting overlay error between non-adjacent layers of the wafer in a first dimension; and

substantially correcting overlay error between adjacent layers of the wafer in a second dimension.

30. (Currently amended) The method of claim [[28]] 23, further comprising: insubstantially correcting overlay error between non-adjacent layers of the wafer in a first dimension; and

insubstantially correcting overlay error between adjacent layers of the wafer in a second dimension.

31. (Currently amended) The method of claim [[28]] 23, further comprising providing a greater amount of overlay correction in one particular direction in comparison to a substantially perpendicular dimension.

H1907

- 32. (Currently amended) The method of claim [[25]] 23, further comprising simultaneously correcting overlay in two or more wafers based at least in part upon the measured overlay error.
- 33. (Previously presented) A system that corrects overlay error between three or more layers of a wafer, comprising:

means for creating an overlay target, the overlay target representing three or more layers of a wafer;

means for delivering light incident to the overlay target;

means for capturing a signature that results from the light incident to the overlay target;
means for comparing the captured signature with one or more stored signatures to
determine overlay error in the overlay target; and

means for correcting overlay error between non-adjacent layers of the wafer based at least in part on the measurements relating to the overlay target.

34. (Previously presented) A system for correcting overlay error between three or more layers of a wafer, where the system comprises:

a measurement component that comprises:

- a light emitting component that delivers light incident to the overlay target;
- a light capturing component utilized to capture a signature that results from the incident light contacting the overlay target; and
- a comparison component that compares a captured signature with one or more stored signatures to determine overlay error associated with the overlay target; and
- a receiving component that receives measurements associated with overlay error between three or more layers of the wafer; and

a control component that effectuates a particular overlay error correction in a first dimension between adjacent layers of the wafer corresponding to a substantially similar overlay error correction in a second dimension between non-adjacent layers of the wafer.